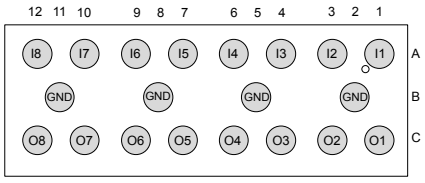
EMIF08-VID1F3

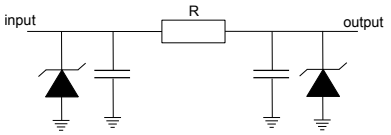
Datasheet

8-line low capacitance EMI filter and ESD protection

WLCSP package – 20 bumps



Pin configuration (Bump side view)



R = 100 Ω
C_{line}= 30 pF typ. at 2.5V_{DC}

Basic cell configuration

Product status link
EMIF08-VID1F3

Features

- High efficiency in EMI filtering in wide filter bandwidth: better than -25 dB from 700 MHz to 3.0 GHz
- Very thin package: 0.6 mm max.
- High efficiency in ESD suppression on all input and output pins (exceeds IEC61000-4-2 level 4: ±20 kV contact discharge)
- High reliability offered by monolithic integration
- High reduction of parasitic elements through integration and wafer level packaging

Applications

- LCD and camera for mobile phones
- Computers and printers
- Communication systems
- MCU boards

Description

This is a highly integrated 8-line device designed to suppress EMI/RFI noise in all systems exposed to electromagnetic interference.

This filter includes ESD protection circuitry, which prevents the application from damages when subjected to ESD surges up to 20 kV.

1 Characteristics

Table 1. Absolute maximum ratings (T_{amb} = 25 °C)

Symbol	Parameter		Value	Unit
V_{pp}	Peak pulse voltage	IESD IEC 61000-4-2 Contact discharge Air discharge	 ±20 ±30	kV
T_j	Operating junction temperature		±125	°C
T_{stg}	Storage temperature range		-40 to +85	°C
T_{op}	Operating temperature range		-65 to +150	°C

Figure 1. Electrical characteristics (definitions)

Symbol		Parameter
V_{BR}	=	Breakdown voltage
V_{CL}	=	Clamping voltage
I_{RM}	=	Leakage current @ V_{RM}
V_{RM}	=	Stand-off voltage
I_F	=	Forward current
I_{PP}	=	Peak pulse current
I_R	=	Breakdown current
V_F	=	Forward voltage drop
R_d	=	Dynamic impedance

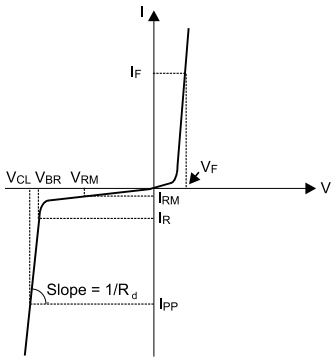


Table 2. Electrical characteristics (T_{amb} = 25 °C)

Symbol	Test conditions	Min.	Typ.	Max.	Unit
V_{BR}	I_R = 1 mA	5.8		9	V
V_F	I_F = 1 mA	0.4		1.5	
I_{RM}	V_{RM} = 3.5 V per line			100	nA
R	Serial resistance	80	100	120	Ω
C_{line}	V_{BIAS} = 2.5 V_{DC} reverse Bias, F = 1 MHz, V_{OSC} = 30 mV		30		pF
F_C	Cut off frequency		98		MHz
S_{21}	Attenuation from 700 MHz to 3 GHz	-25	-30		dB
	F = 1.7 GHz		-45		

1.1 Characteristics (curves)

Figure 2. Attenuation versus frequency

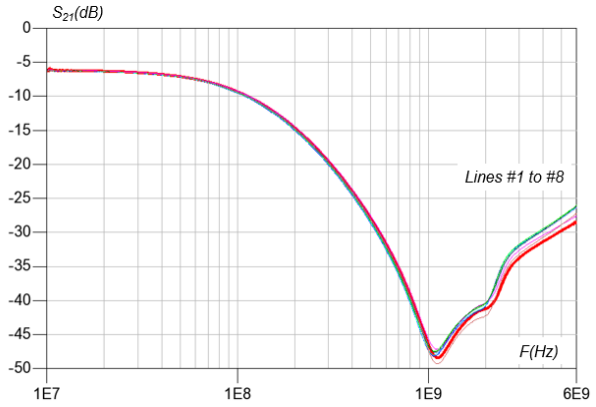


Figure 3. Analog crosstalk measurements versus frequency

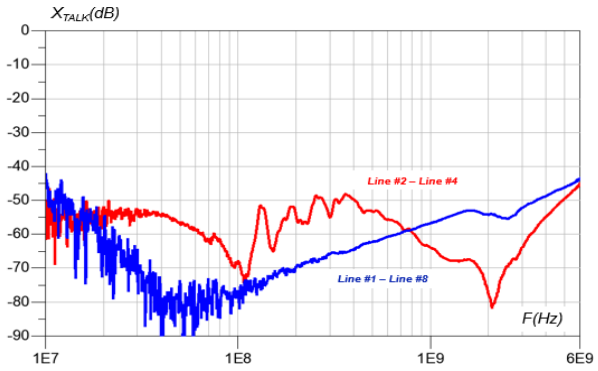


Figure 4. ESD response to IEC 61000-4-2 (+8 kV contact discharge)

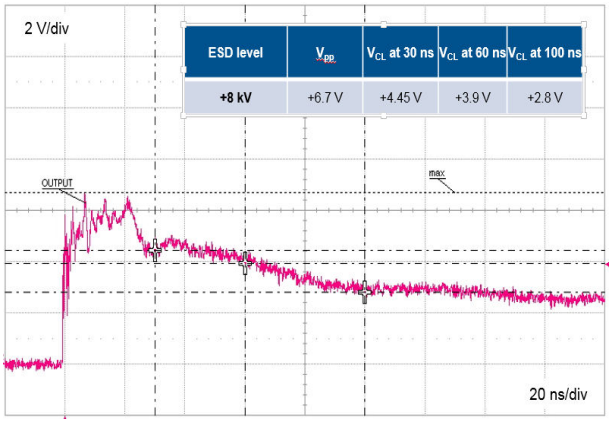
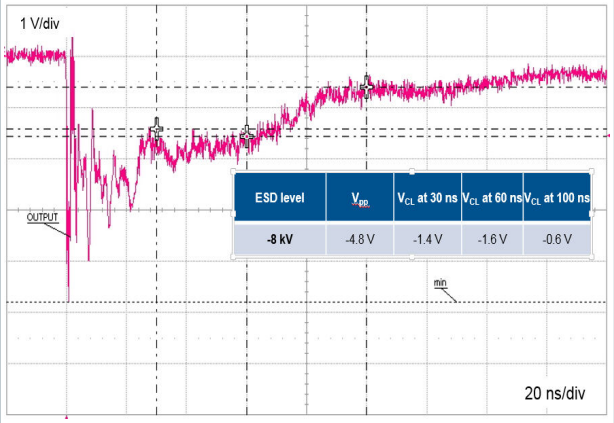


Figure 5. ESD response to IEC 61000-4-2 (-8 kV contact discharge)



2 Package information

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK packages, depending on their level of environmental compliance. ECOPACK specifications, grade definitions and product status are available at: www.st.com. ECOPACK is an ST trademark.

2.1 WLCSP 20 bumps package information

Figure 6. WLCSP 20 bumps package outline

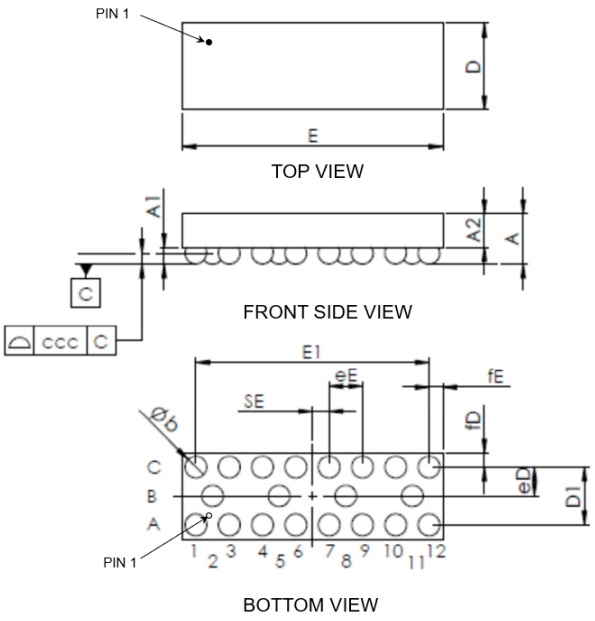


Table 3. WLCSP 20 bumps package mechanical data

Ref.	Dimensions in millimeters		
	Min.	Typ.	Max.
A	0.550	0.605	0.660
A1	0.170	0.205	0.240
A2	0.380	0.400	0.420
b	0.215	0.255	0.295
D	1.007	1.037	1.067
D1		0.700	
E	3.112	3.142	3.172
E1		2.800	
eD		0.350	
eE		0.400	
SE		0.200	
fD		0.163	
fE		0.166	
ccc		0.050	

Figure 7. Footprint recommendations

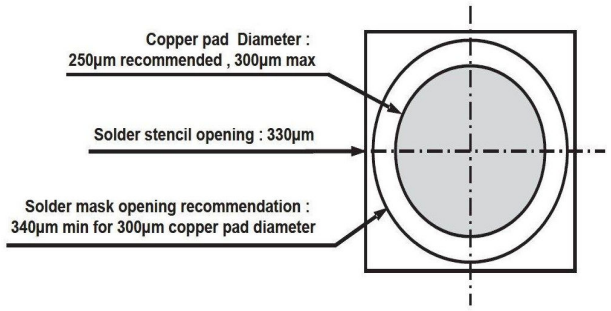


Figure 8. Marking layout

Dot, ST Logo
xx = marking
z = packaging location
yww = date code
Dimensions in µm

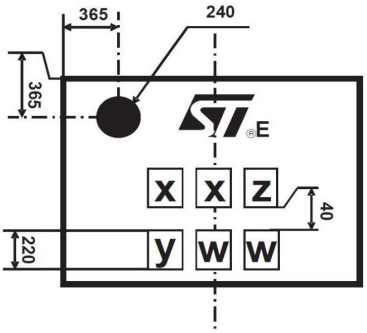
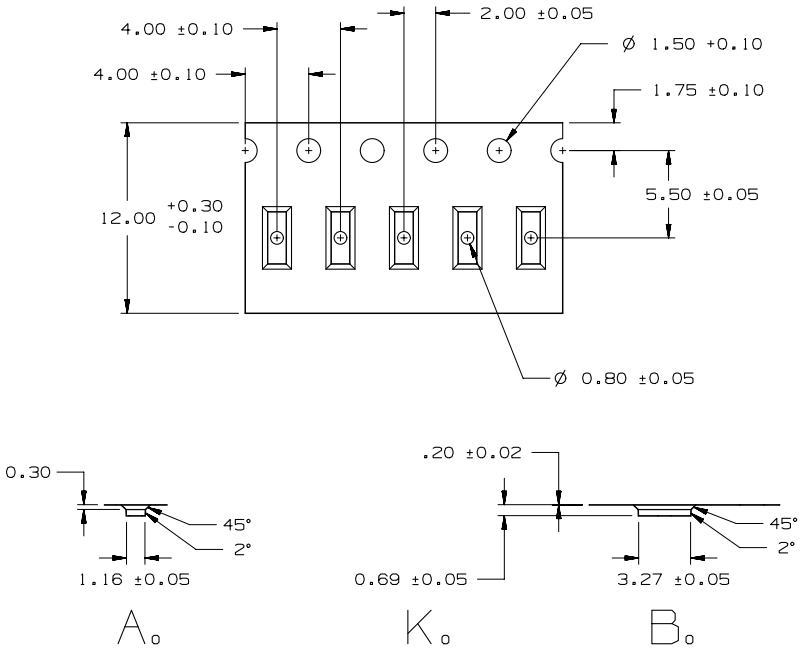


Figure 9. Tape dimension definitions



3 Ordering information

Figure 10. **Ordering information scheme**

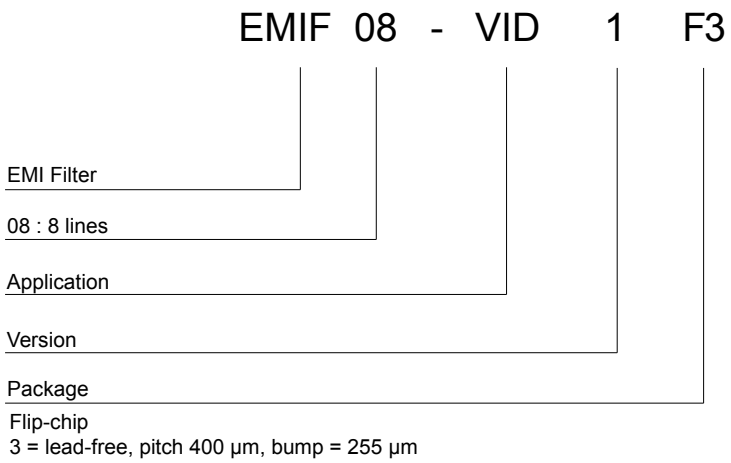


Table 4. **Ordering information**

Order code	Marking	Package	Weight	Base qty.	Delivery mode
EMIF08-VID1F3	LN	WLCSP 20 bumps	7.2 mg	5000	Tape and reel

Revision history

Table 5. **Document revision history**

Date	Revision	Changes
19-May-2017	1	Initial release.
03-Apr-2023	2	Updated pin configuration (bump side view) figure on coverpage, and *Figure 6. WLCSP 20 bumps package outline*. Minor text changes.
12-Mar-2024	3	Updated Figure 6, and added Table 3.

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